

Amendment and Response

Serial No.: 10/008,645

Confirmation No.: 7296

Filed: November 9, 2001

For: METHODS USING ELECTROPHORETICALLY DEPOSITED PATTERNABLE MATERIAL.

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Remarks

The Office Action mailed March 19, 2004 has been received and reviewed. Claim 48 has been amended to correct for formalities. No other claims have been amended or cancelled. Therefore, claims 42-66 are pending in the present application. Reconsideration and withdrawal of the objections and rejections are respectfully requested in view of the above amendment and the following remarks.

Claim Objections

The Examiner objected to claim 48 due to an extra period at the end of the claim. Claim 48 has been amended to delete the period. As such, this objection is overcome and it is respectfully submitted that it be withdrawn.

Claim Rejections - 35 U.S.C. §112**Claims 42-45 and 49-52**

The Examiner rejected claims 42-45 and 49-52 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the Examiner indicates that the specification does not reasonably provide enablement for the electrophoretic deposition of the material on one or more nonconductive regions.

Contrary to the Examiner's assertions, at least page 21 of the pending application provides description for enabling the presently claimed subject matter. Page 21 clearly describes the formation of the patternable material (e.g., electrophoretically deposited) over one or more nonconductive materials (e.g., those having a thickness less than about 15 microns). As such, this rejection is overcome and it is respectfully submitted that it be withdrawn.

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Claim 60

The Examiner rejected claim 60 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner indicates that this claim is redundant of claim 59.

Claim 60 is not redundant of claim 59. Claim 60 describes forming one or more "nonconductive" light emitting elements, whereas claim 59 describes forming one or more "conductive" light emitting elements. Such language is supported by at least pages 19-20 of the specification. As such, this rejection is overcome and it is respectfully submitted that it be withdrawn.

The 35 U.S.C. §103 Rejection

The Examiner rejected claims 56-66 under 35 U.S.C. §103 as being unpatentable over Kiyomiya et al. (U.S. Patent No. 5,466,358) and Emmons et al. (U.S. Patent No. 4,592,816). The Examiner alleges that the difference between Kiyomiya et al. and claims 56-66 are the electrophoretic deposition of the patternable material. The Examiner alleges that Emmons et al. shows such electrophoretic deposition of a patternable material and that one skilled in the art would have modified Kiyomiya et al. as suggested by Emmons et al. because the selection of any known equivalent for the deposition of a patternable material would have been within the level of ordinary skill in the art. The Examiner applies the same to the selection of spacer materials. Applicant respectfully traverses the Examiner's rejections.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

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Claim 56 describes a method for use in producing a display having a face plate and a base plate. The face plate has one or more spacers extending from one side thereof for spacing the face plate from the base plate in the display. The method includes electrophoretically depositing a patternable material over a conductive surface of the face plate in regions adjacent one or more of the spacers, patterning the patternable material resulting in a patterned layer defining openings to the conductive surface, forming a light emitting material on the conductive surface through the defined openings, and removing the patterned layer.

Kiyomiya et al. describes a method of forming a fluorescent screen by electrodeposition. As described in column 4, it appears that a transparent conductive film is formed over a screen panel. Photoresist is then deposited and patterned such that transparent electrodes, e.g., transparent solid electrodes, transparent stripe electrodes, or transparent dot electrodes, and associated guard electrodes, are formed on the screen panel. Such formation of the electrodes involves development, etching and resist separation steps. Thereafter, pillars for securing a vacuum are formed by a multilayer process or the like. After the pillars are formed, fluorescent material is electrophoretically deposited on the transparent solid electrode, transparent stripe electrodes, or transparent dot electrodes, and not on the associated guard electrodes which have a reverse bias voltage applied thereto. Emmons et al. provides little more than description for an electrophoretic deposition process using a photosensitive polymer composition.

With respect to claim 56, the cited references do not teach or suggest all the claim limitations thereof. As such, claim 56 is not obvious in view of the cited references.

For example, claim 56 includes patterning the electrophoretically deposited patternable material resulting in a patterned layer defining openings to the conductive surface. Light emitting material is then formed on the conductive surface through the defined openings. There is no teaching or suggestion in Kiyomiya et al. of defining openings in the patternable material to a conductive surface for use in deposition of one or more light emitting elements on the conductive surface.

Kiyomiya et al. uses an entirely different method of forming the light emitting elements. For example, Kiyomiya et al. describes forming electrodes using photoresist and then

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electrophoretically depositing the fluorescent material. If Kiyomiya et al. is modified by Emmons et al., the only resultant method would be to use the electrophoretic photoresist to form the electrodes of Kiyomiya et al. as that is the only time patternable material is used therein.

Further, nothing in the references describes, teaches or suggests the electrophoretic deposition of patternable material, e.g., photoresist, with the spacers or projections in position.

Claims 57-62 are not obvious over the cited references for various reasons. For example, such claims are dependant on claim 56 and therefore are not obvious over the cited references for the same reasons as described above with reference thereto and by reason of their own limitations. For example, nothing describes, teaches or suggests that subsequent photostabilization of the electrophoretically deposited patternable material be performed such that, with the openings formed in the patternable material, electrophoretic deposition of the light emitting material, e.g., phosphor, can be accomplished as described on page 19 of the specification and in claim 61. Yet further, for example, nothing in the cited references describes, teaches or suggests the electrophoretic deposition of patternable material, e.g., photoresist, over slightly conductive portions of one or more spacers as described in claim 58.

With respect to claims 63-66, limitations similar to those discussed above with reference to claims 56-62 are provided for use in production of a color display, e.g., forming multiple color light emitting elements on the conductive surface through a repeated process of electrophoretically depositing patternable material, patterning the material, forming light emitting elements of a certain color and then removing the patterned material. As such, these claims are also not obvious in view of the cited references for the same or similar reasons as provided above with reference to claim 56. For example, the cited references do not describe, teach, or suggest such methods and there is no motivation to modify Kiyomiya et al. to perform such methods. Particularly, there is nothing in either of the references to suggest the use of electrophoretically patternable material to form the light emitting elements as described above. Kiyomiya et al. only describes electrophoretically depositing fluorescent material on electrodes having associated guard electrodes, which makes the use of electrophoretically deposition of photoresist or other patternable material unnecessary in the deposition thereof.

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For at least the above reasons, claims 63-66 are not obvious in view of the references cited. It is respectfully requested that such rejections be withdrawn.

Double Patenting Rejection

Claim 60 was rejected under the judicially created doctrine of obviousness-type double patenting as being a duplicate of claim 59. As described above, claim 60 is not a duplicate of claim 59. Claim 60 describes forming one or more "nonconductive" light emitting elements, whereas claim 59 describes forming one or more "conductive" light emitting elements. Such language is supported by at least pages 19-20 of the specification. As such, this rejection is overcome and it is respectfully submitted that it be withdrawn.

Allowable Subject Matter

Applicant acknowledges the Examiner's indication that claims 46-48 are in condition for allowance.

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Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
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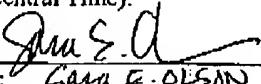
21 June 2004

Date

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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Commissioner for Patents, Mail Stop Amendment, P.O. Box 1450, Alexandria, VA 22313-1450, on this 21st day of June, 2004, at 2:31 pm (Central Time).

By: 
Name: Sara E. OLSON